

**PATENT CLAIMS**

1. A high-voltage insulation system for electrical  
insulation of components whose operating  
5 temperature is below ambient temperature  
comprising a coolant (3) and a solid material (2)  
having a cured polymer matrix (21) and a base  
fabric (20),  
characterized in that the base fabric (20)  
10 comprises cellulose.
2. The high-voltage insulation system as claimed in  
claim 1, characterized in that the coolant (3)  
15 comprises liquid nitrogen and the components  
contain high-temperature superconductor material.
3. The high-voltage insulation system as claimed in  
claim 1, characterized in that, in order to make  
the components mechanically robust, the base  
20 fabric (20) is in the form of pressboards.
4. The high-voltage insulation system as claimed in  
claim 3, characterized in that the base fabric  
comprises a laminate (6) having at least two  
25 layers (20, 61) of pressboards, which are  
separated by at least one intermediate layer (62).
5. The high-voltage insulation system as claimed in  
claim 4, characterized in that the intermediate  
30 layer (62) comprises a fabric composed of cotton,  
nylon or polyethylene fibers.
6. The high-voltage insulation system as claimed in  
claim 1 or 4, characterized in that, in order to  
35 grade electrical fields, carbon in the form of  
fibers or fabrics is added to the base fabric (20)  
or to the intermediate layer (62).

7. The high-voltage insulation system as claimed in claim 1 or 4, characterized in that, for mechanical reinforcement glass fibers in the form of fibers or fabrics are added to the base fabric (20) or to the intermediate layer (62).
8. A method for producing a high-voltage insulation system comprising a coolant (3) and a solid material (2) having a cured polymer matrix (21) and a base fabric (20), characterized in that a base fabric (20) comprising cellulose is formed in the dry state as a pressboard and is then impregnated with a polymer resin.
9. The method as claimed in claim 8, characterized in that the pressboard has a thickness  $d$ , and a minimum radius of curvature  $R$ , and in that the ratio  $R/d$  is less than 150.
10. The method as claimed in claim 8, characterized in that the formed pressboard forms a coil former (6) on which at least one winding of a superconducting conductor (1') is wound, and the coil former (6) and the winding (1') are then impregnated jointly.